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Docket 81674MGB
Customer No. 01333

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

James M. Chwalek, et al

INK-JET PRINTING WITH
REDUCED CROSS-TALK

Serial No. 10/035,902

Filed 26 December 2001

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Group Art Unit: 2861

Examiner: Kristal J. Feggins

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VA 22313-1450.

Gina Schmitt
Gina Schmitt

December 3, 2003
Date

Sir:

APPEAL BRIEF TRANSMITTAL

Enclosed herewith in triplicate is Appellants' Appeal Brief for the above-identified application.

Please charge the \$330 Appeal Brief filing fee to Eastman Kodak Company's American Express Account per the attached PTO-2038 (original + 1 copy).

The Commissioner is hereby authorized to charge the to Eastman Kodak Company Deposit Account 05-0225. **A duplicate copy of this letter is enclosed.**

Respectfully submitted,

Mark G. Bocchetti

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Enclosures



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APPEAL BRIEF PURSUANT TO 37 C.F.R. 1.192

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APPELLANT'S BRIEF ON APPEAL

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims 1-8 which was contained in the Office Action mailed September 25, 2003.

A timely Notice of Appeal was filed .

Real Party In Interest

As indicated above in the caption of the Brief, the Eastman Kodak Company is the real party in interest.

Related Appeals And Interferences

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

Status Of The Claims

Claims 1-8 are pending in the application. Appendix I provides a clean, double spaced copy of the claims on appeal.

Status Of Amendments

No amendment was filed subsequent to the Final Rejection.

Summary Of The Invention

The present invention relates to "continuous" ink jet printers that can selectively produce large-volume and small-volume droplets. An object of the invention is to increase printing densities with tightly packed nozzles while avoiding collision and coalescence of adjacent drops fired at the same time. This risk of coalescence is increased when large-volume drops are fired from adjacent nozzles at the same time.

According to the present invention, a controller is provided to insure that adjacent nozzles never eject large-volume droplets at the same time, thus insuring that large-volume drops are physically separated one from another by a distance greater than the packing distance between adjacent nozzles.

Issues For Review By The Board

The following issue is presented for review by the Board of Patent Appeals and Interferences:

Are Claims 1-8 anticipated by Hawkins et al. (U.S. 6,457,807 B1)?

Grouping Of Claims

In regards to patentability, unless otherwise indicated and for purposes of this appeal only, the claims within each group stand or fall together. Reasons supporting the applicant's position that the groups are separately patentable are provided below in the Arguments section in accordance with Rule 1.192(c)(7).

The claims are grouped as follows:

- A. Claims 1 and 3-8
- B. Claim 2

Arguments

The Rejection

An object of the invention is to increase printing densities with tightly packed nozzles while avoiding collision and coalescence of adjacent drops fired at the same time. This risk of coalescence is increased when large-volume drops are fired from adjacent nozzles at the same time.

According to a feature of the present invention, adjacent nozzles never eject large-volume drops at the same time. Thus, the nozzles can be tightly packed while insuring that large-volume drops are physically separated one from another.

Claims 1-8 stand rejected under 35 U.S.C. 102(e) as being anticipated by Hawkins et al. The reference discloses a “continuous” ink jet printer that can selectively produce large-volume and small-volume droplets. Hawkins et al. address the problem also solved by the present invention, but does so by physically staggering the nozzles in an in-track direction. By so doing, adjacent nozzles are able to eject large-volume drops at the same time because they are sufficiently separated to avoid collision and coalescence.

Claim 2 is patentably distinct because of its recitation of a linear nozzle array, clearly not taught by the staggered array of Hawkins et al.

Summary

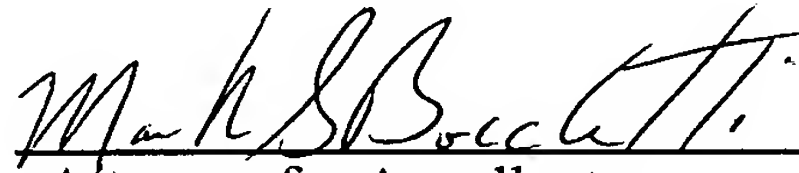
The claims define apparatus that is not taught or rendered obvious by the references of record based on a proper application of 35 U.S.C. 102 or 103. The rejections of the claims are based on improper reading of the disclosure of the references.

For the above reasons, it is submitted that the Examiner's rejection of Claims 1-8 should be reversed.

Conclusion

For the above reasons, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of Claims 1-8.

Respectfully submitted,



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Appendix I - Claims on Appeal

1. An ink jet printer comprising:
 - a print head having an array of nozzles from which ink droplets of adjustable volume are emitted;
 - a mechanism adapted to individually adjust the volume of the emitted ink droplets, said mechanism having a first state wherein the emitted droplets of selected nozzles are of a predetermined small volume and a second state wherein the emitted droplets of selected nozzles are of a predetermined large volume; and
 - a controller adapted to selectively switch the mechanism between its first and its second states such that ink droplets of said predetermined large volume are not simultaneously emitted from adjacent ones of said nozzles.
2. An ink jet printer as set forth in Claim 1, wherein the nozzle array is linear.
3. An ink jet printer as set forth in Claim 1, wherein said mechanism adapted to adjust the volume of the emitted ink droplets includes a heater positioned proximate said nozzle, said heater being adapted to selectively create said ink droplets having small volume and said ink droplets having large volume.
4. An ink jet printer comprising:
 - a print head having an array of nozzles from which streams of ink are emitted, said ink streams breaking up into droplets of adjustable volume moving along a path;
 - a mechanism adapted to individually adjust the volume of the emitted ink droplets, said mechanism having a first state wherein the emitted droplets of

selected nozzles are of a predetermined small volume and a second state wherein the emitted droplets of selected nozzles are of a predetermined large volume; and

a controller adapted to selectively switch the mechanism between its first and its second states such that ink droplets of said predetermined large volume from adjacent ones of said nozzles do not simultaneously occur.

5. An ink jet printer as set forth in Claim 4, further comprising a droplet deflector which uses a flow of gas positioned at an angle greater than zero with respect to said ink droplet path, said droplet deflector being adapted to interact with said ink droplets, thereby separating ink droplets of said predetermined small volume from ink droplets of said predetermined large volume.

6. An ink jet printer as set forth in Claim 5, wherein said droplet deflector includes a recovery plenum positioned adjacent said stream of ink droplets operable to collect and remove ink droplets.

7. An ink jet printer as set forth in Claim 1, wherein said droplets are emitted substantially simultaneously from all the nozzles of the array.

8. A method of ink jet printing using a print head having an array of nozzles from which ink droplets of adjustable volume are emitted;

individually adjusting the volume of the emitted ink droplets such that the emitted droplets of selected nozzles are of predetermined small volume or of a predetermined large volume; and

controlling the size of the ink droplets such that ink droplets of said predetermined large volume are not simultaneously emitted from adjacent ones of said nozzles.



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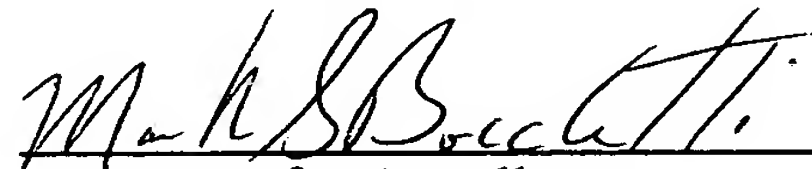
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